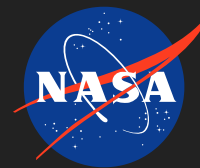


# High Efficiency, Digitally Calibrated TR Modules Enabling Lightweight SweepSAR Architectures for DESDynI-Class Radar Instruments

Completed Technology Project (2012 - 2015)



## Project Introduction

Develop and demonstrate a next-generation digitally calibrated, highly scalable, L-band Transmit/Receive (TR) module to enable a precision beamforming SweepSAR architecture for interferometric radar applications and phase-stable electronically steered arrays.

0.01 dB amplitude, 0.06 degrees phase.

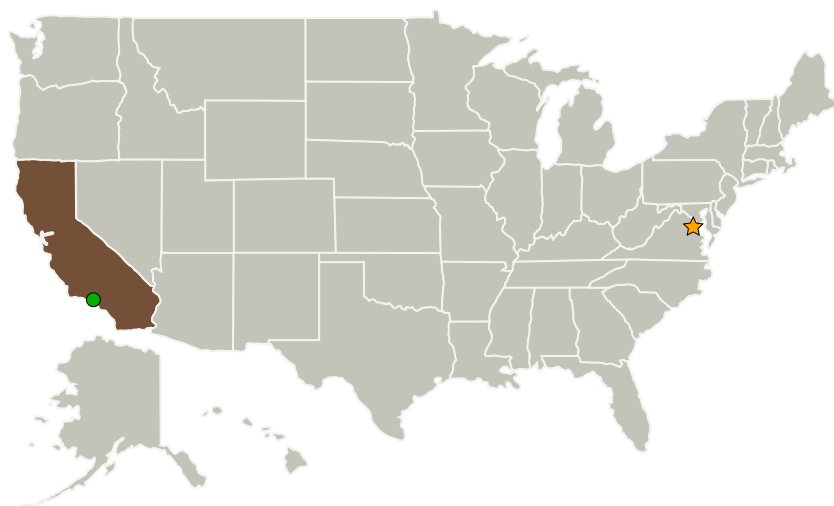
Develop technologies to enable real-time on-board beamforming capability for use in phase-stable array antennas:

High efficiency L-band TR module.

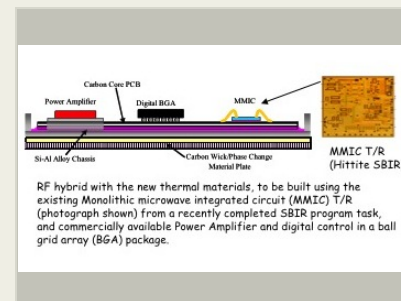
Closed-loop transmit and receive calibration circuitry.

On-board real-time digital calibration and beamforming.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ NASA Headquarters(HQ)	Lead Organization	NASA Center	Washington, District of Columbia
● Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California



Project Image High Efficiency, Digitally Calibrated TR Modules Enabling Lightweight SweepSAR Architectures for DESDynI-Class Radar Instruments

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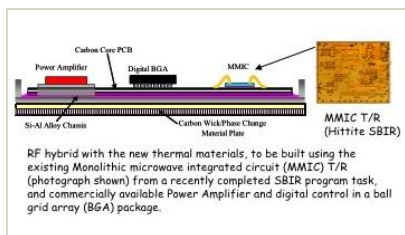
Completed Technology Project (2012 - 2015)



## Primary U.S. Work Locations

California

## Images



**10475-1360020434285.jpg**

Project Image High Efficiency, Digitally Calibrated TR Modules Enabling Lightweight SweepSAR Architectures for DESDynI-Class Radar Instruments  
(<https://techport.nasa.gov/image/1579>)

## Organizational Responsibility

### Responsible Mission Directorate:

Science Mission Directorate (SMD)

### Lead Center / Facility:

NASA Headquarters (HQ)

### Responsible Program:

Earth Science

## Project Management

### Program Director:

George J Komar

### Project Manager:

Joseph Famiglietti

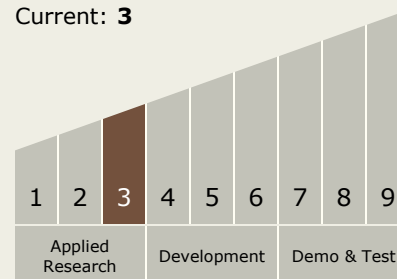
### Principal Investigator:

James R Hoffman

## Technology Maturity (TRL)

Start: 3

Current: 3



# High Efficiency, Digitally Calibrated TR Modules Enabling Lightweight SweepSAR Architectures for DESDynI-Class Radar Instruments

Completed Technology Project (2012 - 2015)



## Technology Areas

### Primary:

- TX08 Sensors and Instruments
  - └ TX08.1 Remote Sensing Instruments/Sensors
    - └ TX08.1.4 Microwave, Millimeter-, and Submillimeter-Waves

## Target Destination

Earth